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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,561	03/31/2004	Paul A. Koning	042390.P18752	7131

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BLAKELY SOKOLOFF TAYLOR & ZAFMAN  
12400 WILSHIRE BOULEVARD  
SEVENTH FLOOR  
LOS ANGELES, CA 90025-1030

EXAMINER

GURLEY, LYNNE ANN

ART UNIT	PAPER NUMBER
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2812

DATE MAILED: 01/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

54

<b>Office Action Summary</b>	<b>Application No.</b> 10/815,561	<b>Applicant(s)</b> KONING, PAUL A.	
	<b>Examiner</b> Lynne A. Gurley	<b>Art Unit</b> 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-26 and 30-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 and 30-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

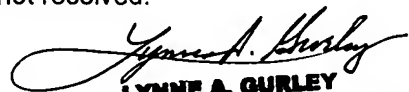
#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

  
**LYNNE A. GURLEY**  
**PRIMARY PATENT EXAMINER**  
**TC 2800, AU 2812**

#### Attachment(s)

- |   |  |
|---|--|
| <p>1) <input type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br/>Paper No(s)/Mail Date _____.</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)<br/>Paper No(s)/Mail Date. _____.</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6) <input type="checkbox"/> Other: _____.</p> |
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### **DETAILED ACTION**

This Office Action is in response to the amendment and remarks, filed 10/11/05.

Currently, claims 1-26 and 30-32 are pending.

#### ***Specification***

1. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 5, 8-9, 11, 14 17-18, 21-22 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Farnworth (US 6,897,089, dated 5/24/05, filed 5/17/02).

Farnworth shows the method substantially as claimed, in figures 1-7 and corresponding text, as forming an imprinted polymer 24 disposed upon a substrate 14 under conditions to expose a bond pad 18 on the substrate by local flow of the polymer, wherein a recess is formed in the polymer (fig. 1F); mating a solder bump (fig. 1I or fig. 3G; column 6, lines 22-53; column

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7, lines 3-17) with the bond pad; and curing the polymer (column 5, lines 26-50). The solder bump is reflowed (column 4, lines 11-15; solder alloy is also disclosed). A convex over-all profile or, contoured recess is formed in the polymer.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 3-4, 6-7, 10, 12-13, 15-16, 19-20, 23, 25-26 and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farnworth (US 6,897,089, dated 5/24/05, filed 5/17/02).

Farnworth shows the method substantially as claimed, as described in the preceding paragraphs.

Farnworth lacks anticipation only in not teaching: the use of solder flux and corresponding deposition; a microprocessor mated with the solder bump, wherein mating

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includes at least partially flattening the convex over-all profile; the film-to-substrate thickness ratio; the specifics of the polymer composition with resin and filler.

It would have been obvious to one of ordinary skill in the art to have had a microprocessor mated with the solder bump, wherein mating includes at least partially flattening the convex over-all profile; to have had the method comprise the steps wherein mating the solder bump with the bond pad includes mating a complementary-contoured solder bump in the recess; to have had the claimed film-to-substrate thickness ratio; and to have had the claimed specifics of the polymer composition with resin and filler, in the method of Farnworth, with the motivation that the use of solder flux is conventional and would make the solder deposition more reliable and efficient; with the motivation that the resins and filler materials are conventional in the art when considering the use of polymers and assuring their reliability; with the motivation that the microprocessor would be an appropriate IC device to integrate with the wafer level method taught in Farnworth (column 1, lines 1-52), depending on the purpose of the completed device; and, additionally, with the motivation that the claimed film-to-substrate thickness ratio would be reasonable to one of ordinary skill in the art, especially with the down-sizing of wafer scale packaging.

#### ***Response to Arguments***

7. Applicant's arguments filed 10/11/05 have been fully considered but they are not persuasive. In response to Applicant's remarks, pages 7-8, the exposure of the bond pad on the substrate by local flow of the polymer is realized because the polymer is not fully cured when the printing step takes place (column 5, lines 1-28). Since there is some mobility remaining in the polymer at this point, the pushing of the stamp into the polymer will displace the polymer causing a "local flow" of the polymer. In response to Applicant's remarks, pages 9-10, the space that the stamp makes as it imprints the polymer, is the recess or the convex over-all profile. Presently, Applicant's claim language does not preclude this broadest interpretation of the claims.

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***Conclusion***

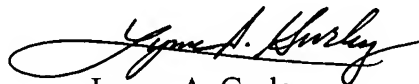
8. The prior art made of record in the previous office action, and not relied upon is considered pertinent to applicant's disclosure. See the PTO Form 892.
9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne A. Gurley whose telephone number is 571-272-1670. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on 571-272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Lynne A. Gurley  
Primary Patent Examiner  
Art Unit 2812

LAG  
December 27, 2005